Milk Let-Down

The Use of Intranasal Oxytocin for Nursing Mothers

BRUCE D. STERN, *M.D.*, Beverly Hills

• **A study was carried out to determine whether intranasal spraying with a solution of oxytocin was an effective way to increase flow of milk in mothers who wished to breast-feed their babies.**

A hundred such women were given the drug intramuscularly for two days before they were to begin nursing. Then administration by that means was discontinued and 50 of the hundred were given oxytocin nasal spray kits for use at home. In general the patients receiving the spray kits were those who were apprehensive about sufficient lactation, those who had had previous difficulty and those who had flat, inverted or tender nipples.

Results were not much different between the 50 women who used the spray and the 50 controls, but since the former group included the "difficult" cases, some benefit may be attributed to the aerosol therapy. Ninety per cent of those who used it said they would be willing to use it again.

MILK LET-DOWN or milk ejection is a forcing out of milk as a result of the action of oxytocin on the myoepithelial elements of the postpartum breast. Several investigators have found that only a part of the milk present in the mammary gland can be drawn out by suckling, and that the contractile system is necessary for the evacuation of milk from the alveoli and finer ducts.[1,3,5]

The intramuscular administration of oxytocin has long been known to produce milk let-down in animals and humans.[2,4,6] However, since new mothers are discharged from the hospital on the third or fourth postpartum day, at a time when lactation has only begun, a method of self-administration is necessary if exogenous oxytocin is to be used to increase the flow of milk. Hence a study was carried out to test nasal spraying as a suitable method of administration.

Of 100 nursing mothers dealt with in private practice in a period of 18 months, 50 were given a nasal spray preparation containing oxytocin (Syntocinon® 40 I. U. per cc.) to use at home. All patients, controls as well as subjects, received intramuscularly 5 units of Syntocinon a day for two days just before they began breast feeding, on the third and fourth days postpartum. Thereafter, the controls received no oxytocin by any means. In the early part of the study the patients using the spray were told to put it into each nostril while lying down, squeezing the container so that a sufficient amount of material was delivered to produce a droplet in the posterior pharynx. Later the patients were instructed to use the spray in the upright position, in order to obtain greater dissemination and absorption. It was estimated that this method supplied approximately 10 units of oxytocic solution in each nostril. The spray was to be used about 5 minutes before each feeding time.

Although no definite criteria were established beforehand for selecting patients for use of the spray, generally it was given to those who were apprehensive about their ability to nurse, those who had had or were having difficulty with the flow of milk, and those who had flat, inverted or tender nipples. Engorgement of the breasts was not a frequent problem, apparently due to the intramuscular use of the oxytocin, and therefore was not often a factor in selecting patients who were to use the spray. The nursing mothers who had a free flow of milk by the time they were ready to leave the hospital, and whose babies were suckling well, usually declined the opportunity to use the supplementary oxytocin.

Intramuscular injection of 5 units of oxytocin after the flow of milk had been established produced drops of milk at the nipple in from 30 seconds to two minutes. When 10 to 20 units of oxytocin was delivered into the nasal mucosa by the spray, drops began to form at the nipple within three minutes, and by five minutes there was dripping of the milk from both breasts, although the greatest flow came from the breast not used at the previous feeding.

The responses of the nursing mothers to retrospective questions were, of course, subjective, but since the controls were as subjective as the patients who used the spray, the answers may be considered to have statistical value.

In this study, the controls showed a somewhat longer period of nursing, but this was due largely to continuance of breast feeding for many months

Presented before the Section on Obstetrics and Gynecology at the 90th Annual Session of the California Medical Association, Los Angeles, April 30 to May 3, 1961.

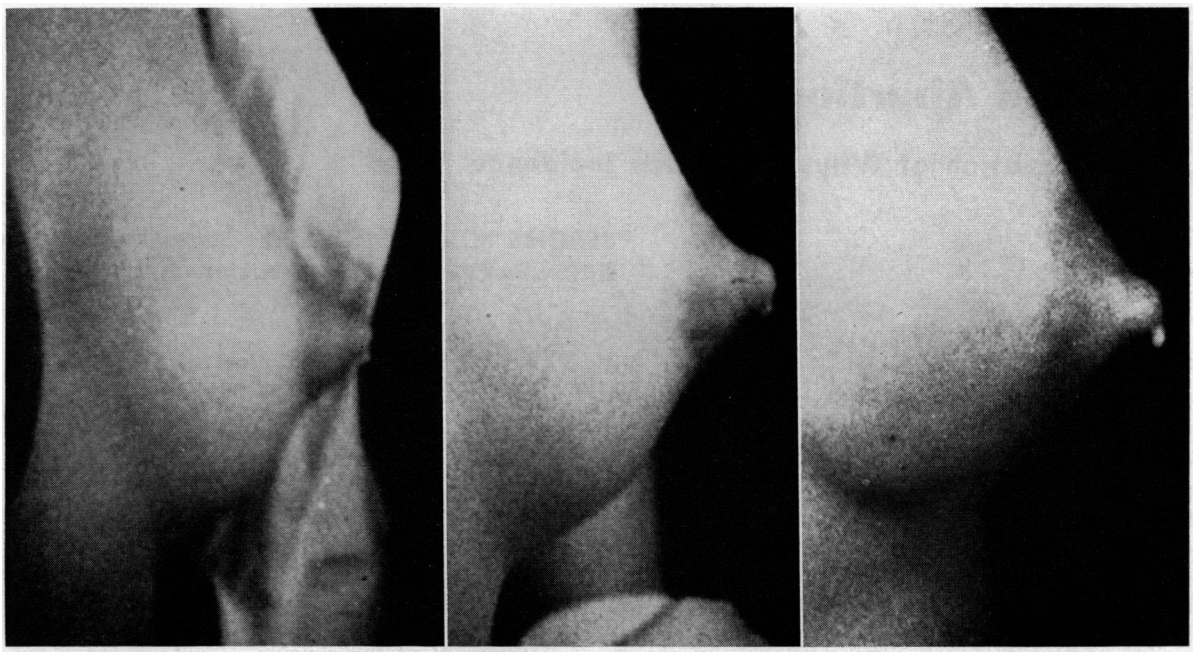

Figure 1.—Breast of nursing mother, left to right, five, six and seven minutes after intranasal spraying with oxytocin solution.

by a few of the women in that group. Painful nipples are usually related to the time at breast and the availability of milk; the spray seemed to decrease this problem since the babies were not required to suckle so vigorously. There was no indication that involution of the uterus was hastened by the exogenous oxytocin, but in neither group was there evidence of subinvolution. Only a few patients objected to the sensation of the material running into the pharynx. One patient did complain of the residual taste.

A relatively high proportion of patients said they would breast feed again, and an even higher proportion said they would be willing to use the nasal spray again. Even though the possibility of using buccal tablets instead was suggested to them, they expressed no reluctance to use the spray method.

From data in Table 1 it is obvious that the differences between the two groups were relatively small, but since the patients who used the spray were less favorable candidates for nursing, we believe that use of the spray brought them to a condition approximating that of the control group. Moreover it was the author's impression that use of the spray greatly encouraged mothers who were apprehensive about their ability to nurse, particularly at the outset.

436 North Roxbury Drive, Beverly Hills.

TABLE 1.—*Data on Effects of Oxytocin Nasal Spray by Nursing Mothers*

	Those Who Used Oxytocin Spray	Controls
Number of weeks of nursing*	7.5	10.7
Minutes per feeding	30	28.6
Painful nipples	20%	25%
Average number of weeks of uterine bleeding	5	4.5
Painful uterine cramps	5%	5%
Local effects (mild) in nasopharynx	5%	.....
Improvement over previous experience (multiparae)	66%	.....
Would breast feed again	70%	75%
Would use nasal spray again	90%	.....

*Termination of nursing was almost always voluntary.

REFERENCES

1. Berde, B.: Recent progress in oxytocin research, monograph, American Lecture Series, 1959.

2. Cross, B. A., and Harris, G. W.: The role of the neurohypophysis in the milk ejection reflex, J. Endocrin., 8:148, 1952.

3. Friedman, E. A.: Direct measurement of milk ejection pressure in unanesthetized lactating humans, Am. J. Obst. and Gyn., 80:119, 1960.

4. Petersen, W. E.: Lactation, Physiol. Rev., 24:340, 1944.

5. Richardson, K. C.: Contractile tissues in the mammary gland, Proc. Roy. Soc. London, 136:30, 1949.

6. Stone, M. L., and Gordon, M.: Evaluation of the use of synthetic oxytocin in obstetrics, Bull. of Millard Fillmore Hospital, Buffalo, 7:78, 1960.